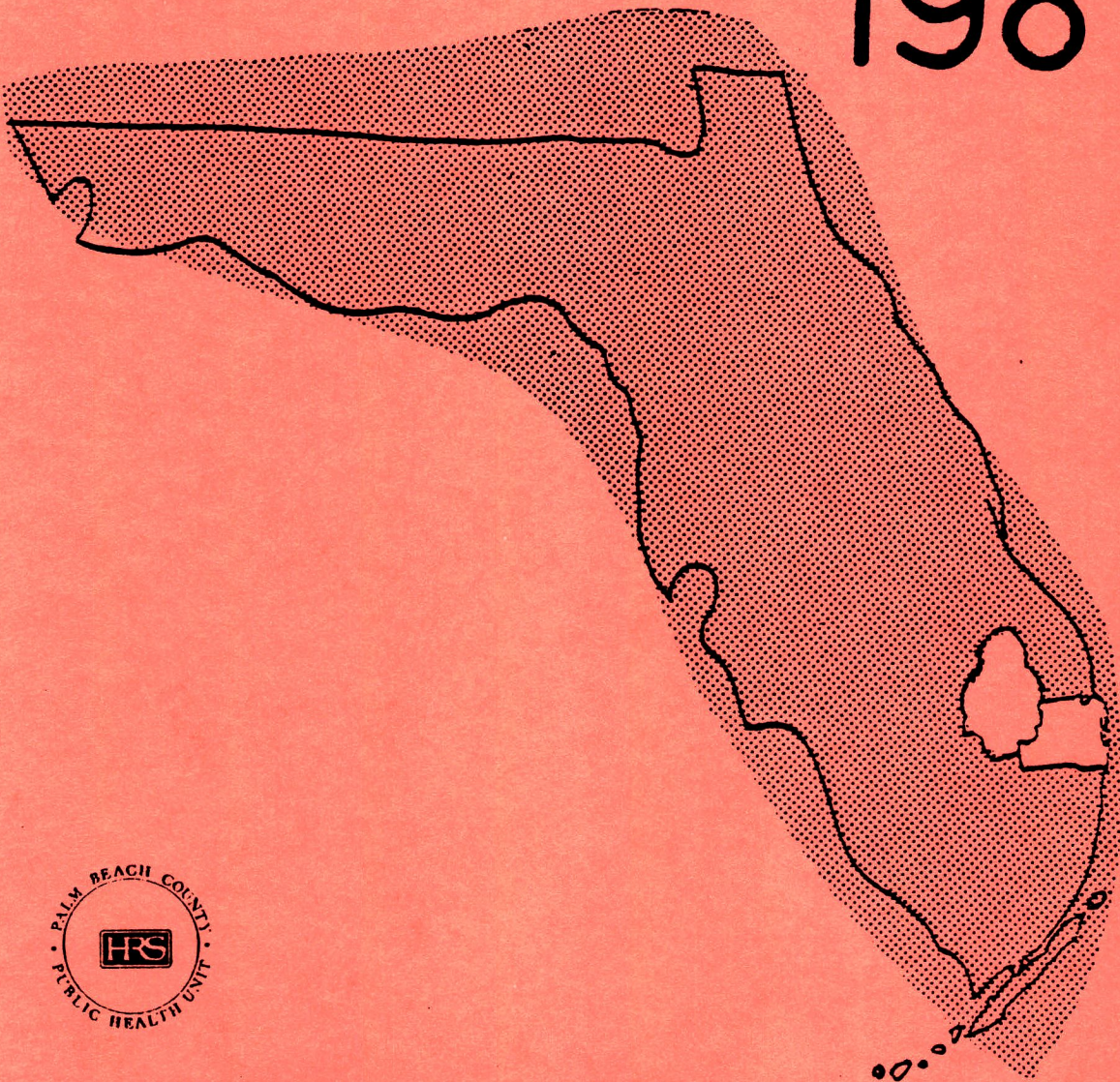


PALM BEACH COUNTY, FLORIDA
DIVISION OF ENVIRONMENTAL
SCIENCE AND ENGINEERING
AIR POLLUTION CONTROL

ANNUAL REPORT

1987



For Reference

Not to be taken from this room

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I

INTRODUCTION

Palm Beach County is located along the southeast coast of Florida, and is part of what is generally called the "Florida Gold Coast". The "Gold Coast" consists of four counties: Palm Beach, Broward, Dade and Monroe. Palm Beach County is geographically separated into two regions: one region is a highly urbanized coastal strip, stretching approximately forty-five (45) miles from Tequesta on the north, to Boca Raton on the south: and the other is agricultural, located in the western portion of Palm Beach County (The Glades Area).

The population distribution within the County depicts this same unusual pattern. Virtually all of the population is located in two relatively small areas: the coastal strip adjacent to the Atlantic Ocean and along a narrow band adjacent to Lake Okeechobee. A population table is included in this section (Table 1).

The majority of the population, approximately 90%, is located on the coast from a distance of approximately 15 miles inland from the Atlantic Ocean. Developments through the years have resulted in several municipalities along the coastal strip.

The band adjacent to Lake Okeechobee contains virtually all of the remaining 10% of the County's population. Municipalities which are included in the Glades area are: Belle Glade, Pahokee and South Bay. The economy of this area is an agricultural one, based principally on sugar cane and winter vegetables.

Tourism and related fields continue to be the major economic factors in the urban area. Tourism has increased along with increased population. Other major industries in the area include building construction and related fields, agriculture, aircraft testing facility, electronics, cement and concrete, asphaltic concrete and the service industries.

The complexity of the problems of Air Pollution Control are related to the widespread growth of Palm Beach County. Advances in environmental protection activities, which are being carried out by this program, have been utilized in order to keep abreast of Air Pollution problems. These activities are characteristic of urban areas across the nation.

The review of applications for the state air permits is one of the many activities handled by the Air Pollution Section of the Palm Beach County Public Health Unit. The Florida Department of Environmental Regulation requires both a permit to construct and a permit to operate any air pollution source. The review of permit applications places our local program in a position to prevent the improper construction of a pollution source and to assure that adequate pollution control equipment is utilized and maintained.

Other activities include: consultations with industries and engineers on impending permit action; enforcement action; maintenance of monitoring network; and required compliance schedule and increments of progress surveillance.

Also, our local program investigates and initiates the necessary follow-up action regarding all citizen complaints. As part of the State Air Implementation Plan, this agency is required to conduct source inspections of existing and new sources in Palm Beach County, in order to assure that all sources are in compliance with Air Pollution Regulations.

The air monitoring capabilities of our program continues to be the ultimate means of maintaining air quality standards in Palm Beach County. The Environmental Control Air Monitoring Laboratory located in West Palm Beach is capable of continuously measuring stationary and mobile source related pollutants, i.e., Carbon Monoxide (CO), Nitrogen Dioxide (NO₂), and two meteorological parameters (wind speed and wind direction). The data is collected through the use of recorders plus a centrally controlled data acquisition system. Our ozone monitor was removed from the air monitoring laboratory in 1979 and relocated in the Town of Royal Palm Beach in order to comply with the E.P.A. siting criteria. The site is also equipped with a centrally controlled data acquisition system. A second ozone monitor was placed at our 20 Mile Bend Site. Both of the ozone sites are National Air Monitoring Sites (NAMS) and are equipped with continuous meteorological sensing equipment. Our sulfur dioxide (SO₂) site was also relocated in accordance with E.P.A. criteria and placed at Riviera Beach.

In addition to the above, our air quality monitoring network includes ten (10) high volume particulate sites. All analysis pertaining to air pollution is performed by our chemistry laboratory located in Delray Beach.

All data collected by our air monitoring network is transmitted via telephone lines using a video display system to the Department of Environmental Regulation in Tallahassee. The data is placed in SAROAD (Storage & Retrieval of Aerometric Data) format for transmission to the Environmental Protection Agency.

Public relation activities during the past year by the Air Pollution Section of the Palm Beach County Health Department have consisted of continued steps to inform the general public of the programs and procedures established to maintain our good air quality. These activities include wide distribution of our Annual Report, extending invitations to groups of school and environmental clubs to visit our facilities, and presentations to school and civic groups throughout the County on the topic of "Air Pollution Control in Palm Beach County". In addition, a major aspect of our program's public relations activities is the dissemination, twice daily, of an "Air Quality Index" to the local news media. The index utilizes the daily results of all measured pollutants.

TABLE 1

POPULATION FOR PALM BEACH COUNTY AND MUNICIPALITIES

<u>MUNICIPALITY</u>	Univm of Fla. Population Estimates 1985	Univ. of Fla. Population Estimates 1986	Univ. of Fla. Population Estimates 1987
Atlantis	1,595	1,618	1,642
Belle Glade	17,080	17,009	17,184
Boca Raton	54,491	55,821	57,120
Boynton Beach	40,127	41,915	44,056
Briny Breezes	367	369	374
Cloud Lake	152	148	152
Delray Beach	41,802	42,800	43,428
Glen Ridge	227	221	225
Golf Village	122	125	129
Golfview	210	207	207
Greenacres City	23,067	24,861	26,201
Gulfstream	515	527	526
Haverhill	1,255	1,265	1,265
Highland Beach	2,987	3,077	3,167
Hypoluxo	886	861	702
Juno Beach	1,731	1,918	1,926
Jupiter	18,324	22,071	24,679
Jupiter Inlet Colony	419	392	398
Lake Clarke Shores	3,207	3,256	3,281
Lake Park	6,797	6,795	6,793
Lake Worth	26,882	26,722	27,249
Lantana	8,411	8,514	8,490
Manalapan	367	368	365
Mangonia Park	1,355	1,339	1,291
North Palm Beach	12,379	12,468	12,782
Ocean Ridge	1,502	1,506	1,522
Pahokee	6,644	6,591	6,633
Palm Beach	10,515	10,653	10,851

*** continued on next page****

TABLE 1
POPULATION FOR PALM BEACH COUNTY AND MUNICIPALITIES
(continued)

	Univ. of Fla. Population Estimates 1985	Univ. of Fla. Population Estimates 1986	Univ. of Fla. Population Estimates 1987
Palm Beach Gardens	20,339	21,390	22,902
Palm Beach Shores	1,254	1,256	1,268
Palm Springs	9,544	9,899	10,152
Riviera Beach	27,609	27,694	28,001
Royal Palm Beach	6,624	7,686	8,496
South Bay	3,644	3,631	3,666
South Palm Beach	1,418	1,410	1,460
Tequesta	3,928	4,077	4,126
West Palm Beach	67,083	67,991	71,336
Total Incorporated	424,839	438,451	454,045
UNINCORPORATED	288,414	313,082	335,488
TOTAL COUNTY	713,253	751,533	789,533

II

METEOROLOGY

Topography is of primary importance whenever the meteorological aspects of a given region are to be evaluated. Palm Beach County is a fairly level region. For the most part, Palm Beach County is between 10 and 20 feet above sea level. All urban development is located along the eastern 15 miles of the coastal strip. Most of the western portions of the County are covered by agricultural lands or everglades.

The agricultural lands are endowed with a rich peatlike "muck" soil. The Atlantic Ocean borders the eastern edge of the County and the Gulf stream flows northward approximately 3 miles off-shore. Seldom does a cold air mass reach this region without being modified due to marine influences and our southern location. Light freezes occur infrequently along the coastal areas of the County and more frequently in the everglades and agricultural areas. The most eastern parts of the County come under the influence of the sea breeze during the day and land breeze during the night. Based on weather data accumulated at Palm Beach International Airport (Table 2), August is the warmest month with a mean of 82.9°F , a maximum mean of 89.9°F , and minimum mean of 75.8°F . From the same data, January is the coldest month with a mean of 64.2°F , a maximum mean of 74.0°F , and a minimum mean of 54.3°F . Rain showers and/or thunderstorms of short duration are frequent during the summer season.

Palm Beach County receives the greatest amount of rainfall during the summer and fall. As indicated in Table 2, the County receives an average 61.6 inches of rain per year.

Palm Beach County can be classified as a semitropical region. The quasi - permanent location of the "Bermuda" high pressure area governs our weather. It causes our prevailing easterly surface winds in addition to supplying the warm moist air necessary to produce the frequent air mass, frontal or nocturnal rain-showers and/or thunderstorms that occur in the County.

The position of the "Bermuda" high pressure area is also conducive to the formation of an atmosphere capable of causing high pollution days. This atmosphere can easily occur if cold air from the north moves underneath the warm moist air brought into the County by the "Bermuda" high. The result is a temperature inversion or increase of temperature with height which traps the pollutants in the lower levels.

Meteorological parameters play a significant role in understanding the over-all air pollution cycle. The motions of the atmosphere are extremely variable and must be thoroughly examined in order to determine the movement and dispersement of pollutants. Both wind direction and wind speed are of primary importance. The surface wind and the wind found in the first few hundred feet of our atmosphere must be studied to determine diffusion and movement of the pollutants.

The wind direction is indicative of the direction of travel of the pollutants. The wind speed determines the time it takes the pollutants to travel to a receptor and is a factor in the amount of dilution of pollutant. Light winds, coupled with other factors, contribute to poor air quality episodes. U.S. Weather Service records of Palm Beach International Airport show the prevailing wind directions for the months of February through November are from one of the easterly headings. Mean monthly speeds vary between 7.5 mi/hr in July and 10.8 mi/hr in April (Table 2). The wind direction and speed for 1987 (Table 3) taken at our continuous monitoring site in West Palm Beach shows that a higher percentage of winds were from the east-northeast, east, or east southeast directions and the majority of the wind speeds were in the 4-10 mi/hr category. Table 4 & Table 5 wind direction and speed, for our Royal Palm Beach & 20 Mile Bend ozone sites (NAMS) are included in this section for information purposes.

TABLE 2
PALM BEACH INTERNATIONAL AIRPORT
METEOROLOGICAL MEANS
(1951 - 1980)

	MEAN MAXIMUM	MEAN MINIMUM	MEAN MONTHLY	MEAN MONTHLY	PREVAILING WIND	MEAN WIND
MONTH	TEMP.	TEMP.	TEMP.	PRECIP.(IN)	DIRECTION	SPEED(mi/hr)
January	74.0	54.3	64.2	2.76	NW	9.8
February	78.8	59.5	69.2	2.56	SE	10.3
March	76.3	59.9	68.1	3.33	SE	10.7
April	81.8	61.3	71.6	3.47	E	10.8
May	84.7	70.5	77.6	5.70	ESE	9.7
June	88.4	73.2	80.8	7.83	ESE	8.1
July	90.5	73.6	82.1	6.39	ESE	7.5
August	89.9	75.8	82.9	6.56	ESE	7.6
September	89.4	75.6	82.5	9.32	ENE	8.7
October	86.6	72.2	79.4	7.34	ENE	10.1
November	84.6	72.1	78.4	3.69	ENE	10.1
December	78.6	65.4	72.0	2.65	NNW	9.9
Yearly	83.6	67.8	75.7	61.61	ESE	9.4

DIRECTION	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	T	PERCENT
WIND SPEED																			
22-24																			
19-21																			
16-18																			
13-15																			
10-12	10	16	32	7	6	2	27	50	9										
7-9	58	81	142	89	43	107	256	153	36	7	12	36	14	28	59	80			
4-6	161	114	259	283	266	386	443	206	75	28	37	41	52	69	111	206			
1-3	276	98	134	218	282	235	211	211	135	140	93	107	152	133	252	331			
Calm																			
TOTAL	505	290	567	597	598	731	940	626	256	175	145	191	219	239	469	664	1511	8723	100.00
PERCENT	5.79	3.32	6.50	6.84	6.86	8.38	40.78	7.18	2.93	2.01	1.66	2.19	2.51	2.74	5.38	7.61	17.32	100.00	

TABLE 3
SITE # 25 - P81
WIND DIRECTION AND SPEED (MI/HR) OCCURRENCES
1987

TABLE 4
SITE # 21 ROYAL PALM BEACH
WIND DIRECTION AND SPEED (MI/HR) OCCURRENCES
1987

DIRECTION	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	T	PERCENT
WIND SPEED																			
22-24																			
19-21																			
16-18										1	1								
13-15	2									3	6							11	0 13
10-12	11							1	4	1	6	17	8	2	1	1	11	63	0 73
7-9	50			1	10	54	43	13	24	15	19	10	16	14	30	54		353	4 09
4-6	167	12	14	50	254	404	181	96	54	35	32	30	40	53	50	91		1581	18 34
1-3	471	148	252	236	502	433	224	195	133	107	107	76	105	106	104	161		3360	38 97
calm																	3252	3252	37 72
TOTAL	701	160	266	287	766	891	449	308	212	167	182	124	172	174	194	317	3252	8622	100 00
PERCENT	8 13	1 86	3 09	3 33	8 88	10 33	5 21	3 57	2 46	1 94	2 11	1 44	1 99	2 02	2 25	3 68	37 72	100 00	

TABLE 5
SITE # 16 - WATER MANAGEMENT DISTRICT
WIND DIRECTION AND SPEED (MI/HR) OCCURANCES
1987

DIRECTION	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	T	PERCENT
WIND SPEED																			
25-27																			
22-24																			
19-21															4			4	0.05
16-18															4	5		9	0.11
13-15	1	1			1		1	1					3	10	18	7		43	0.50
10-12	15	3	4	2	3		8	10	4	6		1	13	18	28	21		136	1.59
7-9	40	23	55	42	54	64	55	26	26	14	6	10	18	55	58	63		609	7.12
4-6	94	71	106	110	223	214	224	115	62	49	13	19	50	72	135	101		1658	19.39
1-3	268	158	218	170	259	272	360	219	153	112	123	102	183	131	224	283		3235	37.83
CALM																	2857	2857	33.41
TOTAL	418	256	383	324	540	550	648	371	245	181	142	132	267	286	471	480	2857	8551	100.00
PERCENT	4.89	2.99	4.48	3.79	6.32	6.43	7.58	4.34	2.87	2.12	1.66	1.54	3.12	3.34	5.51	5.61	33.41	100.00	

III

TECHNICAL STUDIES

INTRODUCTION

The ambient air monitoring program in Palm Beach County during the year 1987 consisted of the following:

Total Suspended Particulate - 10 Sites

Total Gravimetric

Continuous Gaseous Monitoring - 4 Sites

Site 25
Nitrogen Dioxide

Carbon Monoxide

Site 22
Sulfur Dioxide

Sites 16 & 21
Ozone

Continuous Meteorological Monitoring - 3 Sites

Site 25
Wind Speed

Wind Direction

Site 16 & 21
Wind Speed

Wind Direction

Microscopic Morphology

All criteria pollutant data collected is reported monthly to the Department of Environmental Regulation and to the Environmental Protection Agency for inclusion in air quality data banks (SAROAD). Gaseous pollutant levels and meteorological conditions from sites #16, 21, 22 and 25 are relayed by data line to the agency's office by a Sumx Corporation data acquisition system. Instantaneous levels of these parameters are available at all times. One hour averages are calculated and recorded.

Locations of the monitoring sites are shown in Figure 1. Table 6 gives site identification numbers, addresses, and parameters measured for all current monitoring sites within the County. Table 7 provides similar information concerning discontinued monitoring sites. Table 8 relates measured air quality within Palm Beach County for the year 1987 to the Federal and State Ambient Air Quality Standards.

PERMANENT MONITORING NETWORK

The original monitoring network for suspended particulate, sites one through eight, was established in 1969 (Site 1A excluded). The Military Trail intercept line, sites nine through twelve, was added in 1972.

Periodic automated monitoring of sulfur dioxide, nitrogen dioxide and total oxidants (site 1 through 8) was begun in June of 1971.

Total hydrocarbon monitoring was begun in May of 1972 and discontinued in August of 1981. The automated gaseous and meteorological monitoring equipment was installed in the West Palm Beach monitoring station (Site 1) in November of 1972. Original Technicon Monitoring equipment for nitrogen dioxide, sulfur dioxide and total oxidants was replaced during the third quarter of 1973. Total oxidant monitoring was replaced by ozone monitoring at this time. Site 1 was maintained as the central monitoring station for gaseous pollutants, T.S.P., and meteorological parameters until March 1978, when the ozone monitor was relocated in Royal Palm Beach (Site 21). A second rural ozone monitor was placed on line in January 1980 at the South Florida Water Management Pump Station (Site 16) in accord with the National Air Monitoring Stations (NAMS) network. Relocation of the SO₂ monitoring site to Riviera Beach (Site 22), in July 1980, completed the State and Local Air Monitoring Stations (SLAMS). In June of 1986, Site 1 was relocated to the Palm Beach International Airport, 3700 Belvedere Road, West Palm Beach. Network design is summarized in Table 9.

A special study of sulfur dioxide levels and meteorological parameters was conducted in Belle Glade (Site 8), from September of 1972 until May 1978.

Two manual stations for the measurement of nitrogen dioxide were established in November 1973 and maintained until October of 1978 as required by the State Implementation Plan. Manual sulfur dioxide stations have been operated periodically as part of special study projects.

PARTICULATE MONITORING

Methodology: Standard High volume samplers and shelters are located at each of the ten Sites. The Delray Beach Site #5 was relocated to the Delray Beach Laboratory Site #27 in May 1987. The PGA Site #26, was established in August 1987. Samples are collected and handled in accordance with Referenced Method for the Determination of Suspended Particulates in the Atmosphere (High Volume Method), Federal Register, Vol. 36, No. 84 - Friday, April 30, 1971. Sampling time is twenty-four hours, running from midnight to midnight, for each sampling date. The standard six day schedule as recommended by EPA is followed.

Tabulated results for suspended particulates for the year 1987 are presented in Tables 10 and 11. Figure 2 presents the range of probable logarithmic values for suspended particulates at all ten stations for the years 1986 and 1987. A historical summation for total suspended particulate measurements from 1969 thru 1987 is presented in Table 12. Accuracy, Precision and completeness for the year are as follows:

Accuracy	-6 to 4%
Precision	-14 to 14%
Completeness	90%

One site, Southwest Fire Station, Site #10, failed to meet the 75% completeness criteria. Site damaged from hurricane Emily and site relocation were responsible for the excessive downtime.

GASEOUS MONITORING

Maximum ambient air concentrations for gaseous sampling in Palm Beach County for the period 1970-1987 are presented in Table 13.

NITROGEN DIOXIDE (SLAM)

Continuous automatic monitoring for this pollutant was conducted at Sites 1/25.

A MEC Model 1200 NO-NO_x (McMillan Electronics Corporation) Chemiluminescence analyzer was in use from November 15, 1973 until December 27, 1977. At this time it was replaced by Monitor Laboratory Model 8440. This monitor was replaced by a Monitor Labs 8840 on February 13, 1985. Table 14 presents monthly and annual sampling time, arithmetic means and twenty-four hour maximum concentrations. Table 15 includes quarterly and annual, one, eight and twenty-four hour concentration maximums, annual arithmetic means and the frequency distribution of ranges of pollutant levels recorded. Values recorded placed the measured concentrations of this pollutant well below those of the Ambient Air Quality Standards. Accuracy, Precision and completeness for the year are as follows:

Accuracy

Concentration Range	Accuracy Range, %
0.08 - 0.10 ppm	-5 to 2
0.15 - 0.20 ppm	-4 to 2
0.40 - 0.45 ppm	-8 to 2

Precision: -12 to 23

Completeness 62%

CARBON MONOXIDE (SLAMS)

This pollutant is monitored continuously at Site 1. A Mine Safety Appliances, Model 200 non-dispersive infrared spectrophotometric automatic analyzer, in service since January 1971, was retired and replaced by a Model 202-S on October 6, 1977. This monitor was replaced by a Teco 48 on February 5, 1985. This monitor was replaced by a new Teco 48 on April 2, 1987, and the original placed in reserve. Table 16 presents a monthly record of sampling hours, one and eight hour maximums, and relates concentration maximums to the Ambient Air Quality Standard. There were no recorded values in excess of the one hour or eight hour standards during the reported period.

Table 17 presents quarterly, one and eight hour maximum values and frequency distribution of all recorded pollutant levels. Accuracy, precision and completeness for the year are as follows:

ACCURACY

Concentration Range	Accuracy Range, %
3 - 8 ppm	-3 to 2
15 - 20 ppm	-4 to 6
40 - 45 ppm	-8 to 10

Precision: -4 to 5

Completeness: 98%

OZONE (NAMS)

This pollutant was monitored continuously at Site 1 from September 6, 1973 thru 1978. The instrumentation was a MEC Model 1100 (McMillan Electronic Corporation) Chemiluminescence analyzer. In 1978 the instrument was modified by the manufacturer to EPA designated reference method status. The monitor was relocated to Royal Palm Beach, Site 21, and placed in service there March 1, 1979.

In January, 1980 a Monitor Labs Model 8410 ozone monitor, went on line at the South Florida Water Management Pump Station (Site 16). This completed the EPA mandated NAMS ozone monitoring network for Palm Beach County. On December 19, 1983 these two monitors were reassigned, the Monitor Lab was transferred to Royal Palm Beach and the McMillan to the South Florida Pump Station. On November 9, 1984 the McMillan analyzer was replaced by a Monitor Labs 8810(225) UV Photometer analyzer. On February 2, 1986 the Monitor Labs 8410 was retired to stand by status and replaced by a Monitor Labs 8810 (359). On January 23, 1987, the monitor Labs 8810 (225) was retired to stand by and replaced by a monitor Labs 8810 (450).

The Dasibi Model #1003 PC, which had functioned as the calibration system since December, 1978 was reassigned to transfer calibrator status in 1980 in conjunction with a Columbia Scientific Photocal 3000 primary standard. On September 4, 1986 the CSI was replaced by a Dasibi 1008 PCC as the primary standard.

Tables 18 and 20 present a monthly record of hours sampled and one hour maximum recorded at each site. There were no values recorded which exceed the Federal Ambient Air Quality Standard for this pollutant.

One, eight and twenty-four hour maximum and the frequency distribution for all pollutant levels recorded are presented on a quarterly basis in Tables 19 and 21.

Tables 22 and 23 give the design values or expected maximum hourly averages for these sites based on the last three years data using the Weibull distributions. No credit is given for "seasonal free days" in these calculations. Accuracy precision and completeness for the year are as follows:

ACCURACY

Concentration Range	Accuracy Range, %
0.08 - 0.10 ppm	-12 to 8
0.15 - 0.20 ppm	-6 to 4
0.40 - 0.45 ppm	-2 to 3
Precision: -11 to 3	
Completeness: 96%	

SULFUR DIOXIDE (SLAMS)

Monitoring instrumentation is a Monitor Labs Model 8850 Fluorescent monitor which replaced the Beckman 904-A Sulfur Dioxide analyzer, based on coulometric titration. On July 23, 1986, the monitor Labs 8850 was replaced by a new monitor Labs 8850.

Site 22, located in Riviera Beach was established in July, 1980 to monitor sulfur dioxide levels in the coastal region of the County.

Table 24 reports a monthly history of hours sampled, one, three, and twenty-four hour maximums, and the number of violations for each of the related standards. Table 25 presents quarterly and annual maximum values and a frequency distribution of values recorded. Calculation of an arithmetic mean for this pollutant is not feasible because ninety-nine percent of the values are below the limit of sensitivity for the instrument. Precision, accuracy and completeness for the year are as follows:

ACCURACY

Concentration Range	Accuracy Range, %
0.03 - 0.08 ppm	- 1 to 1
0.15 - 0.20 ppm	- 4 to 2
0.40 - 0.45 ppm	- 2 to 2

Precision: - 7 to 4

Completeness: 93%

T A B L E 6
C U R R E N T
M O N I T O R I N G S I T E L O C A T I O N S

SITE NO.	ADDRESS	UTM ZONE 17	MONITORING CAPABILITY
1A	Palm Beach County Health Department 901 Evernia Street West Palm Beach, Florida	2955030N 0593232E	Susp. Part. 1969-87
4	Lake Worth Water Treatment Plant 301-303 College Street Lake Worth, Florida	2943537N 0592793E	Susp. Part. 1979-87
6	Boca Raton Fire Station #1 1151 N. Federal Highway Boca Raton, Florida	2915768N 05913137E	Susp. Part. 1979-87
10	Southwest Fire Department 1180 S. Military Trail West Palm Beach, Florida	2949018N 0588207E	Susp. Part. 1972-87
12	College of Boca Raton S. Military Trail Boca Raton, Florida	2918354N 0587320E	Susp. Part 1979-1987
16	South Florida Water Management Pump Station Twenty Mile Bend State Road 80	2951402N 0562879E	03 1980-87 Susp. Part. 1976-87 Meteorology
20	Pahokee Sewage Treatment Plant 1050 McClure Road Pahokee, Florida	2964200N 0532300E	Susp. Part. 1979-87
21	Royal Palm Beach R.V. Area 10999 Okeechobee Boulevard Royal Palm Beach, Florida	2954150N 0578100E	0 ₃ Meteorology 1979-87
22	Palm Beach County Health Department Warehouse 2030 Avenue "L" Riviera Beach, Florida	296235N 059248E	SO ₂ 1980-87

T A B L E 6 (c o n t .)

24	Glades Central High School 425 W. Canal St. No. Belle Glade, Florida	295180N 053245E	Susp. Part. 1985-1987
25	Palm Beach International 3700 Belvedere Road	29523810N 0589524E	NO ² CO ² 6/27/86-87
26	P.G.A. 3188 P.G.A. Blvd. Palm Beach Gardens, Florida	2969073N 0591000E	Susp. Part. 1986-87
27	Delray Beach Lab. 345 S. Congress Ave. Delray Beach, Florida West Palm Beach, FL	292617N 0590023E	Susp. Part. May 1987

T A B L E 7

D I S C O N T I N U E D

M O N I T O R I N G S I T E L O C A T I O N S

SITE NO.	ADDRESS	UTM ZONE 17	MONITORING CAPABILITY
1	West Palm Beach Water Treatment Plant First Street and Tamarind Avenue West Palm Beach, Florida	2955030N 0593232E	NO ₂ -1970-86 CO-1972-86 Gaseous-1970-81 Meteorology
2	Tequesta Water Department 357 Tequesta Drive Tequesta, Florida	2982018N 0589963E	Susp. Part. 1969-77 Gaseous 1970-71
3	North Palm Beach Water Treatment Plant 603 Anchorage Drive North Palm Beach, Florida	2965817N 0592780E	Susp. Part 1979-86 Disc. Oct. 1986
5	Delray Beach Water Treatment Plant 202 N.W. 1st Avenue Delray Beach, Florida	2927488N 0592195E	Susp. Part 1979-87 Disc. Apr. 1987
7	Royal Palm Beach Golf Course Royal Palm Beach Boulevard Royal Palm Beach, Florida	2951437N 0578767E	Susp. Part. 1969-78 Gaseous 1970-71
8	Belle Glade Water Treatment Plant 1016 West Canal Street Belle Glade, Florida	2953082N 0533160E	Susp. Part 1969-78 Gaseous 1970-78
9	Grammercy Park Water Treatment Plant Park Avenue Grammercy Park, Florida	2960537N 0587329E	Susp. Part. 1972-77
11	St. Vincent DePaul Seminary S. Military Trail Boynton Beach, Florida	2932890N 0586927E	Susp. Part. 1972-76
13	NO _x SIP Site N8 Florida Atlantic University Boca Raton, Florida	2917000N 0589500E	NO _x 1973-78
14	NO _x SIP Site N9 Palm Beach Mall Palm Beach Lakes Boulevard West Palm Beach, Florida	2956000N 0590700E	NO _x 1973-78
15	Division of Forestry Lat. 26° 41' N, Long 80° 16' E Loxahatchee, Florida		Temperature Inversion 1972-85

T A B L E 7 (C o n t d .)

17	Lake Harbor Water Treatment Plant Lake Harbor, Florida	2952230N 0518600E	Susp. Part. 1977
18	Pahokee Health Department 1759 E. Main Street Pahokee, Florida	2967222N 0533760E	Susp. Part. 1977-78
19	Belle Glade Fire Station 22 W. Avenue "A" Belle Glade, Florida	2951420N 0532900E	Susp. Part 1978 83 Discontinued November 4, 1983
23	Belle Glade Health Dept. 1024 N.W. Avenue "D" Belle Glade, Florida	2953082N 053160E	Susp. Part. Discontinued May, 1985

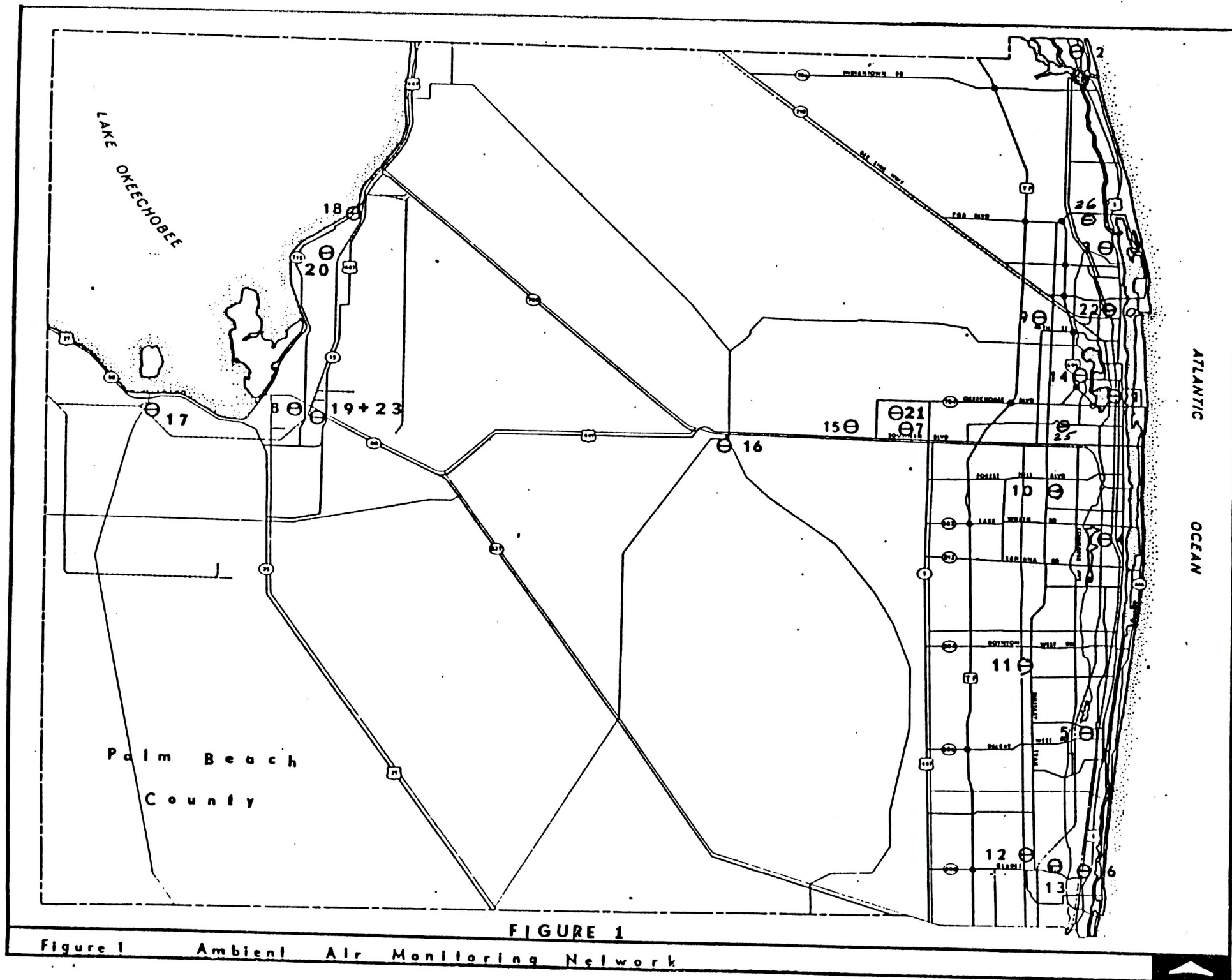


TABLE 8
AMBIENT AIR QUALITY STANDARDS

POLLUTANT	FEDERAL PRIMARY	FEDERAL SECONDARY	STATE	MEASURED LEVELS PALM BEACH COUNTY PPM see table # 10			
Suspended Particulates				Site 16	Site 21	Site 22	Site 25
Annual Geo. Mean	75 ug/m3	60 ug/m3	60 ug/m3				
Maximum 24 hr. Conc (2)	260 ug/m3	150 ug/m3	150 ug/m3				
Sulfur Oxides							
Annual Arith. Mean	80 ug/m3 (0.03 ppm)		60 ug/m3 (0.02 ppm)			.001	
Maximum 24 hr. Conc.	365 ug/m3 (0.14 ppm)		260 ug/m3 (0.1 ppm)			.006	
Maximum 3 hr. Conc.(2)		1,300 ug/m3 (0.5 ppm)	1,300 ug/m3 (0.5 ppm)			.020	
Carbon Monoxide							
Maximum 8 hr. Conc.(2)	10 mg/m3 (9 ppm)	Same as Federal Primary	Same as Federal Primary				4.1
Maximum 1 hr. Conc.	40 mg/m3 (35 ppm)						7.1
Ozone							
Daily Maximum 1 hr. Conc.(1)	235 ug/m3 (0.12 ppm)	Same as Federal Primary	Same as Federal Primary	.092	.110		
Nitrogen Oxides							
Annual Arith. Mean	100 ug/m3 (0.05 ppm)	Same as Federal Primary	Same as Federal Primary				.012

1. The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is equal to or less than 1.

2. Concentration limits not to be exceeded more than once per year.

TABLE 9

**PALM BEACH COUNTY
NETWORK DESCRIPTION
NAMS, SLAMS AND SPECIAL PURPOSE**

Urban Area	Site Address	Network	Saroad Site #	Sampler	Analysis	Pollutant	Mon.Obj.	Spatial Scale	Ope.	Implem.
									Schedule	
Belle Glade	425 W.Canal St.No.	SLAMS	0240-007-G01	Hi Vol	Gravimetric	TSP	Hi Conc.	Neighborhood	6 day	Operational
Boca Raton	1151 N. Fed. Hwy.	SLAMS	0280-001-G01	Hi Vol	Gravimetric	TSP	Pop.Exp.	Neighborhood	6 day	Operational
Boca Raton	S. Military Trail	SLAMS	0280-002-G01	Hi Vol	Gravimetric	TSP	Hi Conc.	Neighborhood	6 day	Operational
Delray Beach	345 S.Congress Ave.	SLAMS	1000-003-G01	Hi Vol	Gravimetric	TSP	Pop Exp.	Neighborhood	6 day	Operational
Lake Worth	301 College St.	SLAMS	2220-001-G01	Hi Vol	Gravimetric	TSP	Max.Conc.	Neighborhood	6 day	Operational
Palm Bch.Gdns.	3188 PGA Blvd.	SLAMS	3425-001-G01	Hi Vol	Gravimetric	TSP	Pop Exp.	Urban	6 day	Operational
W.Palm Beach	1108 S.Military Tr.	SLAMS	3420-005-G01	Hi Vol	Gravimetric	TSP	Hi Conc.	Middle	6 day	Operational
Rural	20 Mile Bend Rd.	NAMS	3120-006-G03	Monitor Lab 8810	UV Photometric	O ₃	Max.Conc.	Urban	cont.	Operational
Rural	10999 Okeechobee Blvd.	NAMS	3420-007-G01	Monitor Lab 8810	UV Photometric	O ₃ (EE)	Pop.Exp.	Neighborhood	cont.	Operational
Riviera Beach	2030 Ave. "L"	SLAMS	3840-003-G02	Monitor Lab 8850	Fluorescent	SO ₂	Max.Conc.	Neighborhood	cont.	Operational
W. Palm Beach	3700 Belvedere Rd.	SLAMS	4760-004-G01	Monitor Lab 8840	Chemilum	NO ₂	Max.Conc.	Neighborhood	cont.	Operational
W. Palm Beach	901 Evernia St.	SLAMS	4760-003-G01	Hi Vol	Gravimetric	TSP	Pop Exp.	Neighborhood	6 day	Operational
W. Palm Beach	3700 Belvedere Rd.	SLAMS	4760-004-G01	Teco 48	Gas Correlation Infrared	CO	Max.Conc.	Neighborhood	cont.	Operational
Rural	Twenty Mile Bend	S.P.	3420-006-G01	Hi Vol	Gravimetric	TSP	Max.Conc.	Neighborhood	6 day	Operational
Pahokee	1050 McClure Rd.	S.P.	3340-001-G01	Hi Vol	Gravimetric	TSP	Max.Conc.	Neighborhood	6 day	Operational

T A B L E 1 0
S U S P E N D E D P A R T I C U L A T E M A T T E R , 1 9 8 7

Site	GEOMETRIC MEAN ug/m3					Geo. Std. Dev.	CONCENTRATION ug/m3				% above or below Annual Standard (60 ug/m3)	No. of Samples Above Daily Standard (150 ug/m3)
	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Annual		Arith. Mean	Max.	2nd Max.	Min.		
1A	43.6	34.1	36.6	34.0	37.0	1.58	40.8	102	88	10	-38.33	-0-
4	46.3	33.4	47.3	44.7	42.5	1.67	49.02	251	118	9	-29.17	-1-
5	50.7	34.7	36.4	30.7	37.2	1.71	42.0	119	98	4	-38.0	-0-
6	45.0	34.6	41.1	34.6	38.6	1.54	42.0	100	87	8	-35.67	-0-
10	57.3	37.3	46.0	59.6	47.4	1.57	52.8	143	109	20	-21.0	-0-
12	43.1	25.2	34.0	21.0	31.2	1.75	35.5	92	73	3	-48.0	-0-
16	43.4	23.5	31.6	31.8	31.8	1.82	37.0	102	96	4	-47.0	-0-
20	47.7	30.9	40.2	44.6	39.7	1.61	43.8	102	74	11	-33.83	-0-
24	61.7	36.7	34.2	26.2	37.9	2.0	44.3	96	81	1	-36.83	-0-
26	--	--	19.3	36.4	28.8	1.99	38.5	205	73	8	-52.0	-1-

TABLE 11

TOTAL SUSPENDED PARTICULATES - 1987
SAMPLING DAYS

SITE NO.	NUMBER OF SAMPLES												
	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
1A	5	5	5	5	5	5	5	6	5	4	5	5	60
4	5	5	5	4	5	4	5	6	5	4	5	5	58
5	4	4	5	5	5	5	5	6	5	4	5	5	58
6	5	5	5	5	3	5	5	6	5	5	5	5	59
10	5	4	4	5	5	2	5	6	5	0	0	3	44
12	4	5	5	5	4	4	3	6	4	3	3	0	46
16	5	5	5	5	5	5	5	6	5	4	5	4	59
20	5	4	2	4	5	4	5	6	5	3	5	5	53
24	4	5	5	5	5	4	5	6	5	5	5	3	57
26	--	--	--	--	--	--	--	2	5	5	5	2	19

FIGURE 2

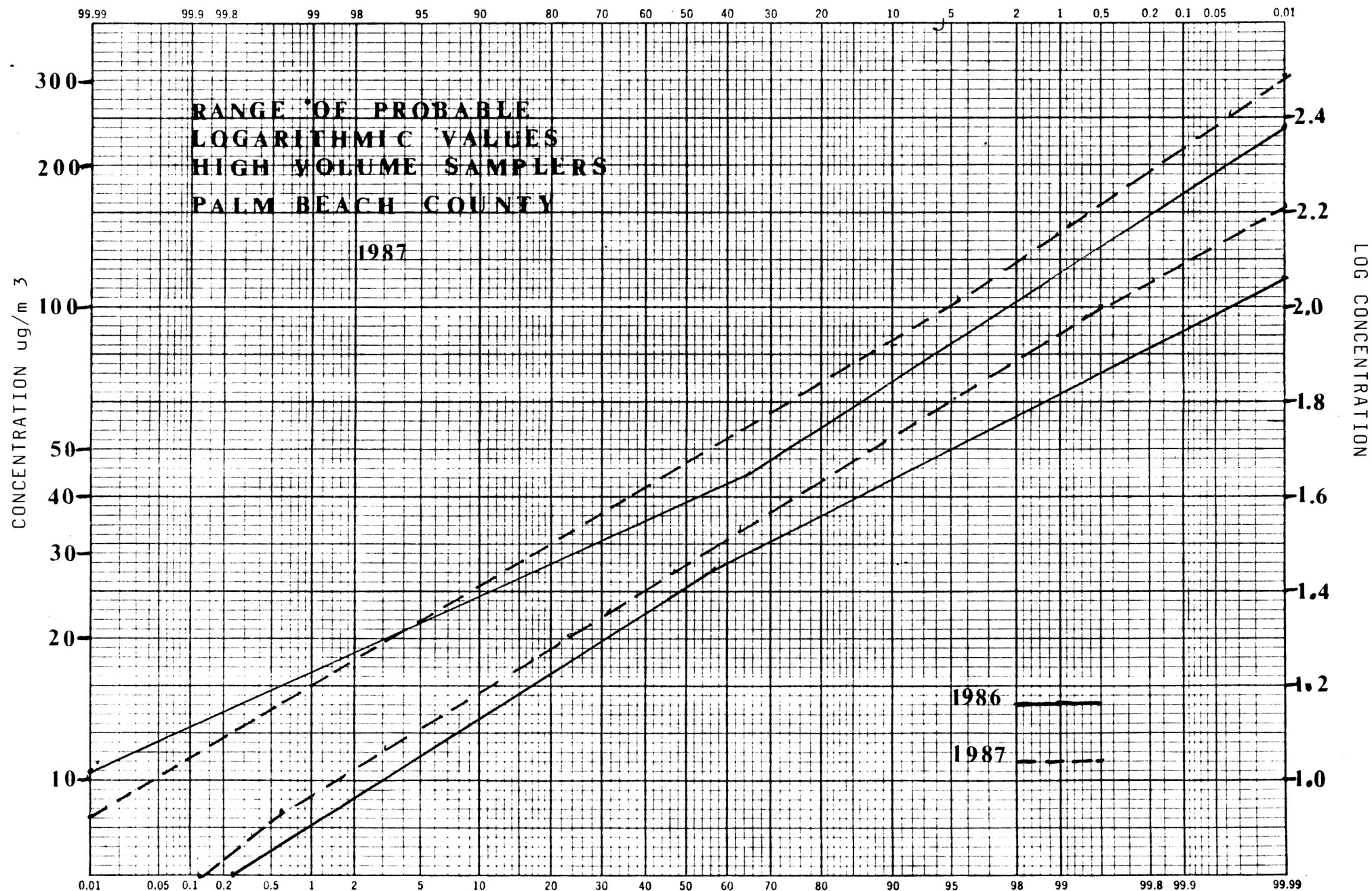


TABLE 12
TOTAL SUSPENDED PARTICULATE $\mu\text{g}/\text{m}^3$
1969-1987

Site No.	Parameter	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1A	Max Hum	109.3	115.7	121.1	133.6	101.9	96.4	81.5	106.2	172	92	88	78	119	72	124	71	102	88	102
	Min Hum	9.6	13.9	15.2	15.2	10.8	19.6	20.0	15.8	17	18	18	22	20	11	11	14	14	16	10
	Arithmetic Mean	48.7	40.9	58.7	49.9	40.5	40.9	44.7	37.4	42.0	41.3	41.0	43.9	49.4	35.3	36.8	36.7	35.2	37.1	40.8
	Geo. Mean	43.9	39.5	53.4	45.9	38.0	38.8	42.4	35.3	38.3	38.2	38.5	42.2	45.8	33.2	32.9	34.5	32.9	34.0	37.0
	Geo. Std. Dev.	1.56	1.42	1.19	1.49	1.49	1.38	1.39	1.41	1.50	1.47	1.44	1.34	1.48	1.45	1.57	2.10	1.45	1.51	1.58
2	Max Hum	71.2	74.3	122.3	112.3	85.4	104.0	77.7	63.1	74										
	Min Hum	7.3	13.3	10.7	12.2	5.3	19.6	11.9	14.0	12										
	Arithmetic Mean	26.9	30.4	34.6	33.0	33.6	32.4	36.4	35.5	33.6										
	Geo. Mean	24.6	28.3	30.8	30.3	31.4	30.6	34.1	33.4	30.9										
	Geo. Std. Dev.	1.51	1.45	1.61	1.48	1.49	1.36	1.45	1.44	1.50										
3	Max Hum	71.8	82.3	167.5	94.8	133.2	132.7	91.8	67.8	62	65	85	90	115	59	117	54	75	53	
	Min Hum	7.7	1.3	0.4	12.8	16.6	16.1	14.6	10.3	11	12	14	20	17	12	11	13	11	12	
	Arithmetic Mean	32.2	31.7	40.6	37.0	38.2	35.8	38.3	31.4	30.4	32.1	37.8	41.5	42.6	28.4	28.4	30.8	32.1	31.2	
	Geo. Mean	29.5	28.4	30.7	33.7	35.3	32.2	34.5	29.1	28.4	30.2	35.3	39.2	39.0	26.4	25.6	29.2	28.0	29.0	
	Geo. Std. Dev.	1.63	1.76	2.93	1.49	1.47	1.54	1.61	1.50	1.45	1.42	1.47	1.41	1.53	1.49	1.56	1.40	1.46	1.47	
4	Max Hum	351.9	224.8	95.6	89.8	85.6	196.8	435.3	81.0	84	85	101	90	123	121	130	81	143	94	251
	Min Hum	7.3	8.0	10.2	12.9	13.3	18.3	19.6	12.7	14	17	20	9	25	14	13	20	13	19	9
	Arithmetic Mean	32.9	30.9	37.2	34.8	37.7	45.2	57.1	38.2	41.0	44.6	44.7	47.8	49.0	38.2	38.7	42.4	40.3	41.7	49.2
	Geo. Mean	26.4	28.2	31.7	32.2	35.3	38.8	47.9	35.8	39.1	42.1	42.0	45.0	45.3	35.1	35.0	39.9	37.0	36.9	42.5
	Geo. Std. Dev.	1.78	1.47	1.85	1.49	1.39	1.67	1.64	1.44	1.38	1.41	1.43	1.46	1.48	1.53	1.54	1.43	1.51	1.57	1.67
5	Max Hum	164.9	76.7	142.4	108.0	92.9	81.9	83.5	61.1	81	99	102	82	122	76	126	65	134	85	119
	Min Hum	13.3	8.3	12.2	15.9	10.9	13.8	22.0	13.8	18	17	19	26	21	16	14	15	13	16	9
	Arithmetic Mean	40.1	36.2	36.4	38.5	40.0	34.8	42.0	35.8	39.1	37.6	40.4	42.7	46.2	35.4	37.2	36.8	39.6	38.5	42.0
	Geo. Mean	38.8	33.6	32.0	35.4	37.6	32.2	39.5	34.0	37.0	35.0	37.6	41.1	42.5	33.2	34.1	34.8	35.6	35.6	37.2
	Geo. Std. Dev.	1.47	1.49	1.61	1.49	1.46	1.53	1.41	1.40	1.41	1.45	1.47	1.33	1.5	1.43	1.80	1.41	1.48	1.49	1.71

TABLE 12 (cont.)

TOTAL SUSPENDED PARTICULATE ug/m³
1969-1987

Site No.	Parameter	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
6	Max Injun	83.1	80.1	237.9	275.3	106.5	92.4	114.8	62.8	79	107	124	94	131	70	134	67	146	78	100
	Ar th., Mean	9.5	9.6	13.3	17.0	13.6	20.9	22.4	16.4	15	18	19	26	25	15	14	17	16	20	8
	Geo. Mean	32.9	31.0	41.1	39.9	40.2	38.4	42.7	33.8	37.0	39.3	43.8	44.8	45.7	32.6	33.4	34.9	37.0	35.4	38.6
	Geo. Std.Dev.	1.60	1.48	2.09	1.56	1.46	1.26	1.43	1.38	1.43	1.45	1.48	1.37	1.42	1.47	1.48	1.42	1.43	1.40	1.54
	Max Injun	52.5	71.7	131.5	102.0	65.5	98.3	70.5	55.2	64	36									
7	Max Injun	7.2	2.1	1.6	7.0	9.1	5.4	11.4	6.2	9	17									
	Ar th., Mean	23.6	25.8	30.7	31.8	28.1	25.6	33.0	23.1	24.3										
	Geo. Mean	21.5	23.3	24.4	28.3	26.2	22.3	30.4	21.0	22.5										
	Geo. Std.Dev.	1.57	1.59	2.13	1.37	1.45	1.66	1.52	1.55	1.49										
	Max Injun	175.7	273.9	222.7	173.3	151.0	210.9	199.4	125.2	144	143									
8	Max Injun	12.7	14.5	12.6	19.8	20.3	22.8	10.7	12.6	17	22									
	Ar th., Mean	53.8	54.6	61.4	58.6	59.8	59.8	62.4	61.6	59.0	58.8									
	Geo. Mean	46.0	47.1	53.1	52.3	54.0	54.2	56.7	54.6	53.1										
	Geo. Std.Dev.	1.75	1.70	1.64	1.60	1.61	1.57	1.56	1.49	1.57										
	Max Injun	74.50	145.3	81.2	145.3	65.3	59.1	33												
9	Max Injun	13.30	11.7	11.3	16.1	9.6	20													
	Ar th., Mean	31.2	33.2	29.9	34.1	28.2														
	Geo. Mean	28.7	30.7	27.0	32.2	26.3														
	Geo. Std.Dev.	1.42	1.45	1.50	1.39	1.46														
	Max Injun	94.80	109.0	111.0	81.7	101.6	98	77	80	87	122	72	122	119	16	18	20	20	143	
10	Max Injun	18.30	19.0	21.0	23.4	12.8	19	21	18	23	19	17	16	16	16	16	16	16	16	20
	Ar th., Mean	44.4	45.3	47.2	42.8	41.4	46.0	43.6	48.9	51.2	48.4	53.1	45.3	42.9	39.5	41.3	36.3	39.3	41.9	52.8
	Geo. Mean	41.6	42.5	39.0	45.4	40.5	39.2	43.6	48.9	51.2	48.4	53.1	45.3	42.9	39.5	41.3	36.3	39.3	41.9	52.8
	Geo. Std.Dev.	1.43	1.43	1.54	1.35	1.40	1.40	1.41	1.45	1.33	1.54	1.40	1.55	1.50	1.50	1.44	1.44	1.45	1.45	1.57
	Max Injun	94.80	109.0	111.0	81.7	101.6	98	77	80	87	122	72	122	119	16	18	20	20	143	

TABLE 12 (cont.)
TOTAL SUSPENDED PARTICULATE ug/m³
1969-1987

Site		1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
No.	Parameter																			
11	Maximum				69.9	77.8	134.3	299.9	60.8											
	Minimum				11.9	11.5	13.5	13.5	10.9											
	Arith. Mean				32.1	30.8	34.4	44.9												
	Geo. Mean				29.2	28.9	29.4	37.7												
	Geo. St d. Dev.				1.51	1.53	1.70	1.67												
12	Maximum				68.1	79.6	200.7	64.7	53.7	66	69	85	107	122	62	116	65	144	97	92
	Minimum				11.2	11.0	12.8	18.2	7.0	14	14	13	14	18	10	12	14	14	16	3
	Arith. Mean				29.6	31.7	34.9	34.2	26.9	29.8	29.0	35.0	38.5	40.8	27.3	30.4	31.0	34.3	31.0	35.5
	Geo. Mean				26.9	29.6	29.2	32.4	25.1	27.9	27.2	31.7	35.8	37.0	25.0	27.2	28.7	31.6	28.9	31.2
	Geo. St d. Dev.				1.54	1.43	1.70	1.39	1.47	1.43	1.43	1.56	1.54	1.55	1.52	1.57	1.48	1.47	1.54	1.75
16	Maximum								130.1	76	136	87	68	96	128	73	125	102	97	102
	Minimum								14.6	12	14	14	19	16	9	9	11	11	16	4
	Arith. Mean								35.0	30.9	31.5	37.3	34.2	43.4	26.5	27.8	33.6	32.8	31.0	37.0
	Geo. Mean								31.0	38.2	28.7	33.8	32.1	38.4	23.5	25.2	29.8	29.4	28.9	31.8
	Geo. St d. Dev.								1.60	1.52	1.50	1.57	1.44	1.66	1.60	1.54	1.61	1.60	1.54	1.82
17	Maximum								69											
	Minimum								10											
	Arith. Mean								34.6											
	Geo. Mean								31.6											
	Geo. St d. Dev.								1.53											
18/20	Maximum								63	76										
	Minimum								9	16										
	Arith. Mean									30.8										
	Geo. Mean									28.8										
	Geo. St d. Dev.									1.44										

TABLE 12 (cont.)
TOTAL SUSPENDED PARTICULATE $\mu\text{g}/\text{m}^3$
1969-1987

Site No.	Parameter	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
19/23	Maximum										121	121	110	166	87	102	110			
	Minimum										20	16	31	25	16	23	16			
	Arith. Mean										52.9	57.5	58.9	62.7	47.8	45.8	50.9			
	Geo. Mean										49.6	53.9	56.5	56.6	45.1	43.1	47.2			
	Geo. Std. Dev.										1.45	1.45	1.34	1.57	1.41	1.42	1.46			
20	Maximum										122	164	177	85	100	77	131	110	102	
	Minimum										21	16	21	12	19	14	19	14	11	
	Arith. Mean										50.6	52.0	55.6	41.8	40.5	42.0	42.3	40.1	43.8	
	Geo. Mean										46.4	47.9	50.6	38.6	38.1	39.2	38.7	36.4	39.7	
	Geo. Std. Dev.										1.52	1.48	1.56	1.52	1.41	1.47	1.52	1.54	1.61	
24	Maximum																82	101	96	
	Minimum																16	18	1	
	Arith. Mean																38.7	41.0	44.3	
	Geo. Mean																35.5	37.5	37.9	
	Geo. Std. Dev.																1.52	1.53	2.0	
25	Maximum																		205	
	Minimum																		8	
	Arith. Mean																		38.5	
	Geo. Mean																		28.8	
	Geo. Std. Dev.																		1.99	

T A B L E 1 3

G A S E O U S S A M P L I N G

M A X I M U M A M B I E N T A I R C O N C E N T R A T I O N S , P P M

1 9 7 0 - 1 9 8 7

Site No.	Sampling Dates	Sulfur Dioxide			Total Oxidants		Ozone	
		1 Hour	3 Hour	24 Hour	1 Hour	8 Hour	1 Hour	8 Hour
1	07/17-07/31/70	0.094	0.038	0.007	0.114	0.073	--	--
	04/12-04/27/71	0.044	0.028	>0.006	>0.188	>0.130	--	--
	07/16-07/30/71	0.035	0.012	0.002	0.032	0.026	--	--
	11/14-12/31/72	0.023	0.021	0.003	>0.187	>0.040	--	--
	01/01-11/14/73	0.042	0.034	0.004	--	--	--	--
	11/14-12/31/73	0.015	0.008	0.001	--	--	--	--
	01/01-11/01/73				0.155	0.063		
	09/06-12/31/73						>0.100	>0.071
	01/01-12/31/74	0.075	0.052	0.023			0.077	0.055
	01/01-12/31/75	0.062	0.025	0.008	--	--	0.104	0.077
	01/01-12/31/76	0.055	0.034	0.021	--	--	0.148	0.122
	01/01-12/31/77	0.019	0.015	0.009	--	--	0.106	0.088
	01/01-12/31/78				--	--	0.075	0.066
	04/01-06/30/78	0.030	0.022	0.008	--	--	--	--
	01/01-10/22/79	0.024	0.017	0.016	--	--	--	--
2	06/16-07/02/70	0.035	0.026	0.010	0.104	0.093	--	--
	05/11-05/25/71	0.191	0.142	0.028	0.010	0.0004	--	--
	08/13-08/27/71	0.033	0.015	0.003	0.016	0.018	--	--
3	07/02-07/17/70	0.196	0.128	0.028	0.176	0.086	--	--
	04/27-05/11/71	>0.500	0.324	0.060	0.111	0.055	--	--
	07/30-08/13/71	0.064	0.035	0.005	0.007	0.001	--	--
	05/18-06/30/72	0.053	0.032	0.006	0.116	0.071	--	--
	09/03-12/31/76	--	--	0.004	--	--	--	--
	01/01-12/31/77	--	--	0.004	--	--	--	--
4	07/31-08/14/70	0.031	0.024	0.010	0.129	0.089	--	--
	03/26-04/12/71	0.044	0.034	0.012	0.110	0.106	--	--
	09/23-10/04/71	0.080	0.035	0.006	0.056	0.048	--	--
	11/10-11/19/71	0.000	0.000	0.000	0.078	0.073	--	--

TABLE 13

G A S E O U S S A M P L I N G
M A X I M U M A M B I E N T A I R C O N C E N T R A T I O N S , P P M
1 9 7 0 - 1 9 8 7 (c o n t i n u e d)

Site No.	Sampling Dates	Sulfur Dioxide			Total Oxidants		Ozone	
		1 Hour	3 Hour	24 Hour	1 Hour	8 Hour	1 Hour	8 Hour
5	09/04-09/18/70	0.069	0.029	0.003	0.092	0.066		
	03/12-03/26/71	0.060	0.028	0.005	0.013	0.086		
	10/19-11/01/71	0.006	0.002	0.0003	0.136	0.101		
6	08/21-09/04/70	0.076	0.048	0.013	0.048	0.037		
	01/27-02/12/71	0.132	0.098	0.017	0.110	0.095		
	12/29-01/12/72	0.068	0.034	0.006	0.000	0.000		
	07/05-08/01/72	0.015	0.012	0.003	0.050	0.027		
7	09/28-10/12/70	0.106	0.048	0.006	0.076	0.068		
	02/26-03/12/71	0.026	0.008	>0.003	0.110	0.093		
	11/19-12/10/71	0.015	0.006	0.001	0.038	0.016		
8	10/12-10/26/70	0.000	0.000	0.000	0.078	0.061		
	02/12-02/26/71	>0.288	0.125	>0.030	0.103	0.076		
	02/10-12/29/71	>0.267	0.217	>0.039	0.012	0.006		
	09/21/72-05/01/73	0.068	0.028	0.007				
	12/01/72-05/18/73	0.176	0.098	0.044				
	12/18-12/31/73	0.153	0.113	0.025				
	01/01-09/27/74	0.065	0.031	0.004				
	07/08-12/31/75	0.075	0.074	0.029				
	01/01-12/31/76	0.085	0.078	0.051				
	01/01-12/31/77	0.033	0.029	0.016				
	01/01-05/19/78	0.047	0.043	0.019				
16	01/03-12/31/80						.098	.081
	01/01-12/31/81						.095	.074
	01/01-12/31/82						.080	.073
	01/01-12/31/83						.087	.071
	01/01-12/31/84						.095	.079
	01/01-12/31/85						.094	.071
	01/01-12/31/86						.102	.092
	01/01-12/31/87						.092	.079
17	09/27-12/31/76			0.003				
	01/01-12/31/77			0.003				

TABLE 13

GASEOUS SAMPLING
 MAXIMUM AMBIENT AIR CONCENTRATIONS, PPM
 1970 - 1987 (continued)

Site No.	Sampling Dates	Sulfur Dioxide			Total Oxidants		Ozone	
		1 Hour	3 Hour	24 Hour	1 Hour	8 Hour	1 Hour	8 Hour
21	03/01-12/31/79						.079	.070
	01/01-12/31/80						.110	.080
	01/01-12/31/81						.103	.079
	01/01-12/31/82						.122	.073
	01/01-12/31/83						.092	.073
	01/01-12/31/84						.090	.072
	01/01-12/31/85						.089	.076
	01/01-12/31/86						.096	.055
	01/01-12/31/87						.110	.078
22	07/24-12/31/80	0.016	0.014	0.013				
	01/01-12/31/81	0.034	0.031	0.019				
	01/01-12/31/82	0.067	0.053	0.019				
	01/01-12/31/83	0.035	0.025	0.015				
	01/01-12/31/84	0.062	0.052	0.014				
	01/01-12/31/85	0.073	0.040	0.009				
	01/01-12/31/86	0.040	0.022	0.010				
	01/01-12/31/87	0.057	0.020	0.006				

TABLE 13

MAXIMUM AMBIENT AIR CONCENTRATION, PPM
1970 - 1987

Site No.	Sampling Dates	Nitrogen Dioxide			Carbon Monoxide		Total Hydrocarbons	
		1 Hour	8 Hour	Ar./Mean	1 Hour	8 Hour	1 Hour	8 Hour
1	07/17-07/31/70	0.097	0.068	0.016				
	04/12-04/27/71	0.147	0.079	0.026				
	07/16-07/30/71	0.067	0.056	0.018	3.6	3.1		
	11/14-12/31/72	0.092	0.079	0.020	7.0	3.7	6.5	3.2
	01/01-11/15/73	0.060	0.047	0.007				
	01/01-12/31/73				8.9	6.3	5.5	3.3
	01/01-12/31/74	0.080	0.052	0.015	10.5	8.8	5.8	4.4
	01/01-12/31/75	0.125	0.083	0.015	8.6	5.0	5.2	3.0
	01/01-12/31/76	0.083	0.054	0.009	10.5	5.2	5.3	3.7
	01/01-12/31/77	0.071	0.044	0.017	11.8	8.5	5.2	3.6
	01/01-12/31/78	0.089	0.070	0.012	8.6	4.5		
	10/18-12/31/78						5.8	3.2
	01/01-11/28/79	0.078	0.056	0.016				
	01/01-11/08/79				7.8	3.1		
	01/01-12/31/79						8.3	2.9
	01/01-12/31/80	0.137	0.088	0.018	9.8	5.7	9.6	6.2
	01/01-12/31/81	0.152	0.107	0.012	13.3	5.8		
	01/01-08/14/81						8.4	3.5
	01/01-12/31/82	0.069	0.053	0.038	21.3	8.1		
	01/01-12/31/83	0.069	0.055	0.010	8.9	6.5		
2	06/16-07/02/70	0.044	0.032	0.010				
	05/11-05/25/71	0.054	0.040	0.013	2.2	0.3		
	08/12-08/27/71	0.073	0.060	0.013	0.0	0.0		
3	07/02-07/17/70	0.084	0.060	0.010				
	04/27-05/11/71	0.096	0.066	0.017				
	07/30-08/13/71	0.083	0.069	0.018	3.2	0.9		
	05/18-06/30/72	0.088	0.059	0.010	0.0	0.0	3.2	2.2
	01/01-12/31/76			0.006				
	01/01-12/31/77			0.010				
	01/01-03/31/78			0.014				

T A B L E 1 3

M A X I M U M A M B I E N T A I R C O N C E N T R A T I O N , P P M
1 9 7 0 - 1 9 8 7 (c o n t i n u e d)

Site No.	Sampling Dates	Nitrogen Dioxide			Carbon Monoxide		Total Hydrocarbons	
		1 Hour	8 Hour	Ar./Mean	1 Hour	8 Hour	1 Hour	8 Hour
4	07/31-08/14/70	0.097	0.068	0.016				
	03/26-04/12/71	0.118	0.107	0.018	2.1	0.3		
	09/23-10/14/71	0.059	0.041	0.018	0.0	0.0		
	11/10-11/19/71	0.124	0.101	0.020	0.0	0.0		
5	09/04-09/18/70	0.055	0.051	0.013				
	03/12-03/26/71	0.146	0.113	0.018	2.1	0.4		
	10/19-11/01/71	0.117	0.093	0.029				
6	08/21-09/04/70	0.064	0.048	0.015				
	01/27-02/12/71	>0.200	>0.187	0.047	9.6	4.2		
	12/29-01/12/71	0.079	0.069	0.022	2.6	0.4		
	07/05-08/01/72	0.065	0.055	0.011				
7	09/28-10/12/71	0.031	0.018	0.007				
	02/26-03/12/71	0.106	0.081	0.016	0.8	0.1		
	11/09-12/10/71	0.074	0.055	0.19	2.2	2.0		
8	10/12-10/26/70	0.118	0.067	0.017				
	02/12-02/26/71	0.152	0.091	0.022	5.2	3.0		
	12/10-12/29/71	0.076	0.048	0.024	0.0	0.0		
13	11/14-12/31/73			0.003				
	01/01-12/31/74			0.004				
	01/01-12/31/75			0.008				
	01/01-12/31/76			0.005				
	01/01-12/31/77			0.008				
	01/01-12/31/78			0.010				
14	11/14-12/31/73			0.004				
	01/01-12/31/74			0.005				
	01/01-12/31/75			0.012				
	01/01-12/31/76			0.008				
	01/01-12/31/77			0.015				
	01/01-12/31/78			0.015				
25	06/27-12/31/86	0.043	0.039	0.011	7.2	3.4		
	01/01-12/31/87	0.117	0.055	0.012	7.1	4.1		

T A B L E 1 4
N I T R O G E N D I O X I D E D A T A
S I T E N U M B E R 2 5
1 9 8 7

Month	Hours	Arith. (a) Avg., ppm	Max. 24 Hr. Avg., ppm
J	328	.011	.028
F	0	--	--
M	584	.013	.032
A	617	.017	.037
M	689	.010	.019
J	675	.008	.017
J	424	.010	.030
A	100	.008	.011
S	0	--	--
O	499	.013	.025
N	628	.011	.021
D	701	.014	.030
ANNUAL	5245	.012	.037

This site was discontinued 6/19/86 and moved to the P.B.I. site on Belvedere Road.

TABLE 15
 AMBIENT AIR-NITROGEN DIOXIDE, PPM
 SITE NUMBER 25
 1987

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual		
1 Hr. Maximum	.117	.083	.049	.055	.117		
8 Hr. Maximum	.042	.055	.039	.048	.055		
24 Hr. Maximum	.032	.037	.023	.030	.037		
Arith. Mean.	.013	.017	.016	.014	.012		
Concentration Range			Hours			%	Cum. %
< .010	448	1120	339	814	2721	51.88	51.88
.010 - .019	265	543	132	674	1614	30.77	82.65
.020 - .029	119	211	35	233	598	11.40	94.05
.030 - .039	50	56	11	69	186	3.55	97.60
.040 - .049	23	30	7	30	90	1.71	99.31
.050 - .059	6	5		8	19	.36	99.67
.060 - .069		12			12	.23	99.90
.070 - .079		3			3	.06	99.96
.080 - .089	1	1			2	.04	100.00
.090 - .099							
.100 - .109							
.110 - .119							
.120 - .129							
.130 - .139							
.140 - .149							
.150 - .159							
Total	912	1981	524	1828	5245	59.87	
Downtime	1248	203	1684	380	3515	40.13	
Total Time at Site	2160	2184	2208	2208	8760		

Setup and installed on 6/27/86.

T A B L E 1 6
C A R B O N M O N O X I D E D A T A
S I T E N U M B E R 2 5
1 9 8 7

Month	Hours	Arith. Mean ppm	1 Hr. Max. ppm	No. of Times 1 Hr. Standard (35 ppm) exceeded	8 Hr. Max. ppm	No. of Times 8 Hr. Standard (9 ppm) exceeded
J	734	1.0	7.1	-0-	4.1	-0-
F	665	.9	4.9	-0-	2.8	-0-
M	725	.8	5.4	-0-	3.2	-0-
A	711	.6	4.3	-0-	2.2	-0-
M	734	.5	4.4	-0-	1.6	-0-
J	711	.4	3.5	-0-	1.4	-0-
J	715	.6	4.1	-0-	1.9	-0-
A	736	.7	5.4	-0-	2.0	-0-
S	688	.7	4.6	-0-	2.2	-0-
O	737	.7	3.6	-0-	1.8	-0-
N	664	.6	4.3	-0-	2.5	-0-
D	733	.9	5.0	-0-	3.8	-0-
ANNUAL	8553	.7	7.1	-0-	4.1	-0-

This site was discontinued 6/19/86 and moved to the P.B.I. site on Belvedere Road.

TABLE 17
 AMBIENT AIR, CARBON MONOXIDE, ppm
 SITE NUMBER 25
 1987

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual		
1 Hr. Maximum	7.1	4.4	5.4	5.0	7.1		
8 Hr. Maximum	4.1	2.2	2.2	3.8	4.1		
24 Hr. Maximum	2.5	1.2	2.0	2.1	2.5		
Mean	1.0	.6	.7	.9	.7		
Concentration Range			Hours			%	Cum. %
< 2.0	1976	2101	2043	2041	8161	95.42	95.42
2.0 - 2.4	48	25	35	37	145	1.70	97.12
2.5 - 2.9	47	12	28	30	117	1.37	98.49
3.0 - 3.4	19	8	17	7	51	.59	99.08
3.5 - 3.9	12	5	4	11	32	.37	99.45
4.0 - 4.4	5	5	6	3	19	.22	99.67
4.5 - 4.9	5		5	3	13	.15	99.82
5.0 - 5.4	4		1	2	7	.08	99.90
5.5 - 5.9	3				3	.04	99.94
6.0 - 6.4	4				4	.05	99.99
6.5 - 6.9							
7.0 - 7.4	1				1	.01	100.00
7.5 - 7.9							
8.0 - 8.4							
8.5 - 8.9							
9.0 - 9.4							
9.5 - 9.9							
10.0 - 10.4							
10.5 - 10.9							
11.0 - 11.4							
11.5 - 11.9>							
Total	2124	2156	2139	2134	8553	97.64	
Downtime	36	28	69	74	207	2.36	
Total Time at Site	2160	2184	2208	2208	8760		

This site was discontinued 6/19/86 and moved to the P.B.I. site on Belvedere Road.

TABLE 18
OZONE DATA
SITE NUMBER 16
1987

Month	Hours	Arith. Mean ppm	1 Hour Maximum ppm	No. of Hours 1 Hr. Florida Std. or Federal Std. (0.12 ppm) Exceeded
J	730	.015	.071	-0-
F	659	.020	.056	-0-
M	711	.027	.079	-0-
A	681	.037	.092	-0-
M	576	.021	.077	-0-
J	711	.013	.050	-0-
J	630	.014	.066	-0-
A	735	.016	.055	-0-
S	702	.016	.087	-0-
O	716	.022	.063	-0-
N	711	.017	.048	-0-
D	738	.017	.068	-0-
ANNUAL	8300	.020	.092	-0-

TABLE 19
 AMBIENT AIR - OZONE, PPM
 SITE NUMBER 16
 1987

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual		
1 Hr. Maximum	.079	.092	.087	.068	.092		
8 Hr. Maximum	.066	.079	.059	.054	.079		
24 Hr. Maximum	.039	.055	.030	.038	.055		
Mean	.027	.037	.016	.022	.020		
Concentration Range			Hours			%	Cum. %
< .010	665	585	924	650	2766	33.32	33.32
.010 - .019	502	330	407	520	1759	21.19	54.51
.020 - .029	418	400	385	504	1707	20.57	75.08
.030 - .039	332	264	239	375	1210	14.58	89.66
.040 - .049	167	177	78	93	515	6.21	95.87
.050 - .059	52	106	25	16	199	2.40	98.27
.060 - .069	18	83	8	7	116	1.40	99.67
.070 - .079	4	21			25	.30	99.97
.080 - .089		1	1		2	.02	99.99
.090 - .099		1			1	.01	100.00
Total	2100	1968	2067	2165	8300	94.75	
Downtime	60	216	141	43	460	5.25	
Total Time at Site	2160	2184	2208	2208	8760		

T A B L E 2 0
O Z O N E D A T A
S I T E N U M B E R 2 1
1 9 8 7

Month	Hours	Arith. Mean ppm	1 Hour Maximum ppm	No. of Hours 1 Hr. Florida Std. or Federal Std. (0.12 ppm) Exceeded
J	733	.013	.051	-0-
F	668	.019	.058	-0-
M	726	.030	.078	-0-
A	713	.038	.110	-0-
M	652	.023	.080	-0-
J	673	.014	.062	-0-
J	737	.012	.066	-0-
A	709	.014	.055	-0-
S	705	.015	.078	-0-
O	734	.024	.066	-0-
N	670	.020	.047	-0-
D	735	.017	.067	-0-
ANNUAL	8455	.020	.110	-0-

TABLE 21
 AMBIENT AIR-OZONE, PPM
 SITE NUMBER 21
 1987

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual		
1 Hr. Maximum	.078	.110	.078	.067	.110		
8 Hr. Maximum	.068	.078	.057	.058	.078		
24 Hr. Maximum	.049	.058	.033	.049	.058		
Mean	.030	.038	.015	.024	.020		
Concentration Range			Hours			%	Cum. %
< .010	604	541	1062	572	2779	32.87	32.87
.010 - .019	402	334	396	358	1490	17.62	50.49
.020 - .029	472	387	390	604	1853	21.92	72.41
.030 - .039	444	327	194	441	1406	16.63	89.04
.040 - .049	146	154	82	133	515	6.09	95.13
.050 - .059	39	143	18	25	225	2.66	97.79
.060 - .069	16	115	6	6	143	1.69	99.48
.070 - .079	4	29	3		36	.42	99.90
.080 - .089		4			4	.05	99.95
.090 - .099		3			3	.04	99.99
.100 - .109							
.110 - .119		1			1	.01	100.00
Total	2127	2038	2151	2139	8455	96.52	
Downtime	33	146	57	69	305	3.48	
Total Time at Site	2160	2184	2208	2208	8760		

TABLE 22
OZONE DESIGN VALUES 1980 - 1987
SITE NUMBER 16
WEIBULL DISTRIBUTIONS

Year	Number of Excursions ≥ 0.12 ppm	Number of Days Sampled	% Complete	Maximum 1 Hr. Avg. ppm	2nd Max. 1 Hr. Avg. ppm	Annual Design Value ppm	Three Year Design Value ppm
1980	-0-	292	79.78	.098	.083	.097	N.A.
1981	-0-	318	87.12	.095	.089	.095	N.A.
1982	-0-	352	96.44	.080	.078	.084	.095
1983	-0-	298	81.64	.087	.085	.088	.088
1984	-0-	250	68.31	.095	.089	.096	.089
1985	-0-	329	90.14	.094	.093	.097	.101
1986	-0-	345	94.52	.102	.079	.104	.086
1987	-0-	353	96.71	.092	.087	.088	.105

TABLE 23
OZONE DESIGN VALUES 1973-1987
SITE NUMBER 21
WEIBULL DISTRIBUTIONS

Year	Number of Excursions 0.12 ppm	Number of Days Sampled	% Complete	Maximum 1 Hr. Avg. ppm	2nd Max. 1 Hr. Avg. ppm	Annual Design Value ppm	Three Year Design Value ppm
1973	-0-	116	31.78	.111	.104	.130	N.A.
1974	-0-	363	99.45	.077	.074	.078	.106
1975	-0-	331	90.68	.104	.086	.097	.101
1976	3	270	73.97	.148	.142	.154	.123
1977	-0-	323	88.49	.106	.101	.106	.122
1978	-0-	138	37.81	.075	.069	.079	.128
1979	-0-	256	70.14	.082	.076	.081	.092
1980	-0-	299	81.69	.110	.102	.109	.101
1981	-0-	348	95.34	.103	.089	.098	.102
1982	-0-	354	96.99	.122	.080	.106	.106
1983	-0-	332	91.23	.092	.088	.091	.101
1984	-0-	362	98.91	.090	.089	.098	.099
1985	-0-	340	93.15	.089	.087	.092	.093
1986	-0-	349	95.62	.096	.092	.103	.102
1987	-0-	358	98.08	.110	.095	.097	.104

TABLE 24
SULFUR DIOXIDE DATA
SITE NUMBER 22
1987

Month	Hours	Arith. Mean ppm	1 Hr. Max. ppm	3 Hr. Max. ppm	No. of Times 3 Hr. Std. Exceeded (0.5 ppm)	24 Hr. Max. ppm	No. of Times 24 Hr. Std. Exceeded (0.1 ppm)
J	728	.001	.007	.006	-0-	.003	-0-
F	613	.001	.057	.019	-0-	.004	-0-
M	692	.001	.007	.006	-0-	.004	-0-
A	683	.002	.012	.008	-0-	.005	-0-
M	699	.000	.006	.004	-0-	.001	-0-
J	675	.001	.027	.020	-0-	.003	-0-
J	701	.000	.002	.001	-0-	.000	-0-
A	703	.000	.009	.005	-0-	.001	-0-
S	677	.001	.014	.012	-0-	.006	-0-
O	700	.001	.006	.006	-0-	.003	-0-
N	680	.000	.004	.003	-0-	.002	-0-
D	562	.000	.004	.006	-0-	.003	-0-
ANNUAL	8113	.001	.057	.020	-0-	.006	-0-

TABLE 25
 AMBIENT AIR - SULFUR DIOXIDE, PPM
 SITE NUMBER 22
 1987

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual		
1 Hr. Maximum	.057	.027	.014	.006	.057		
8 Hr. Maximum	.010	.008	.006	.004	.010		
24 Hr. Maximum	.004	.005	.006	.003	.006		
Mean	.001	.001	.001	.000	.001		
Concentration Range			Hours			%	Cum. %
< .010	2030	2054	2079	1942	8105	99.91	99.91
.010 - .014	2	1	2		5	.06	99.97
.015 - .019							
.020 - .024		1			1	.01	99.98
.025 - .029		1			1	.01	99.99
.030 - .034							
.035 - .039							
.040 - .044							
.045 - .049							
.050 - .054							
.055 - .059	1				1	.01	100.00
.060 - .064							
Total	2033	2057	2081	1942	8113	92.61	
Downtime	127	127	127	266	647	7.39	
Total Time at Site	2160	2184	2208	2208	8760		

IV

AIR QUALITY INDEX

The Environmental Protection Agency (EPA) has developed a uniform standardized daily air quality reporting index, called the Pollutant Standard Index (PSI), locally called the Air Quality Index (AQI), to be used by State and local agencies. The use of this index for reporting air quality was made mandatory on May 10, 1979 in the Federal Register/Vol. 44, No 92/Part 58, Subpart E, Appendix G.

This index is dependent upon measured concentrations of the five pollutants which have been assigned National Ambient Air Quality Standards (NAAQS), Federal Episode Criteria, and Significant Harm levels; i.e., total suspended particulate, carbon monoxide, sulfur dioxide, nitrogen dioxide, and ozone. The index converts air pollution concentrations to a normalized number on a scale of zero to five hundred, with the National Ambient Air Quality Standard for each pollutant being assigned the value of 100. This approach is believed to be easier for the public to understand than a report of actual pollutant concentrations. Index values are calculated for each of the five pollutants. The highest of these is the report value.

Five descriptor words have been chosen to depict daily air quality: "good" (0-50), "moderate" (51-100), "unhealthful" (101-200), "very unhealthful" (201-300), and "hazardous" (301-500). If pollutant concentration warrant, the AQI report is expanded to include identification of the problem pollutant, cautionary statements and generalized health effects.

Adoption of the AQI by many pollution control organizations has reduced the confusion previously encountered due to the existances of many different indices. AQI has several advantages: (1) it is simple and can be easily understood by the public, (2) it can accommodate new pollutants, (3) it is based on a reasonable scientific premise, (4) it relates to National Ambient Air Quality Standards, Federal Episode Criteria, and Significant Harm Levels, and (5) it exhibits day to day variations.

The Palm Beach County Public Health Unit samples for the above pollutants and has utilized the Air Quality Index since April 28, 1976. A typical air quality report for Palm Beach County would be "The Air Quality Index is 31. The ambient air quality is within the good range." Index advisories are issued to local newspapers, televisions and radio stations each morning and afternoon Monday through Friday. Table 26 gives a statistical analysis of the monthly morning and afternoon values. As noted, TSP or Ozone concentrations accounted for all values in the moderate range.

T A B L E 2 6
A I R Q U A L I T Y I N D E X
W E S T P A L M B E A C H
1 9 8 7

A . M . D A T A

Month	Days		A.Q.I.		Mean.	SD.
	Good	Moderate	Maximum	Minimum		
Jan.	20	0	37	13	27	7
Feb.	18	2	62	21	33	11
March	21	1	54	20	33	7
April	17	5	57	26	44	9
May	19	1	62	19	30	9
June	22	-0-	44	17	27	7
July	20	2	55	20	32	11
Aug.	18	3	58	23	37	10
Sept.	21	-0-	38	10	24	7
Oct.	20	2	57	10	33	13
Nov.	17	1	57	17	26	9
Dec.	22	-0-	42	17	30	7
Year	235	17	62	10	31	9

TABLE 26 (cont.)

AIR QUALITY INDEX
WEST PALM BEACH
1987

P.M. DATA

Month	Days		A.Q.I.		Mean.	SD.
	Good	Moderate	Maximum	Minimum		
Jan.	20	0	44	16	31	7
Feb.	19	1	55	25	34	8
March	19	3	60	23	39	10
April	9	13	63	31	52	10
May	19	1	68	25	35	9
June	22	-0-	44	21	30	6
July	19	3	57	22	36	11
Aug.	18	3	58	27	39	9
Sept.	20	1	58	18	31	10
Oct.	20	2	57	19	38	10
Nov.	17	1	57	19	29	9
Dec.	22	-0-	42	23	33	5
Year	224	28	68	16	36	9

Of the values in the Moderate category, T.S.P. values were responsible on nine days for both morning and afternoon A.Q.I.'s. All other in the Moderate range were related to Ozone concentrations. No A.Q.I. values above the Moderate zone were reported.

EMISSION INVENTORY

INTRODUCTION

Air pollution evolved as an undesired by-product of the technological advancement of our modern society. On the other hand, this modern society also developed technological methods to prevent and control these atmospheric emissions of air pollutants.

Defining air pollution problem areas by determining the actual sources and components of air pollution is a prime step towards abating air pollution, and subsequently attaining and maintaining national ambient air quality standards (NAAQS). The emission inventory accomplishes this crucial step by addressing the sources, types and quantities of air pollution emissions.

A comprehensive emission inventory is an essential tool for any Air Pollution regulatory agency. The inventory provides information for the design of an air sampling and analysis program, identifies the relative contribution of the various pollution sources, offers data for the development of control strategies, and makes this information available for our regional planning authorities.

A number of factors used in compiling the emission inventory, such as reported fuel usage figures, fuel composition, process information and especially emission factors, are somewhat limited in preciseness due to the state-of-the-art knowledge available.

Never-the-less, the emission inventory, by nature of its magnitude, still yields results with adequate accuracy for the purpose and intent of our county air pollution program.

The emission inventory presented in this report represents calculated emissions from major point sources and generalized acceptable estimates of emissions from area sources (Table 27 and 28, respectively).

MAJOR POINT SOURCES

Palm Beach County has 22 major air pollution sources which emit a significant emission tonage of one or more types of air pollutants. Table 27 lists these sources by name and details air emissions by pollutant type in tons per year for 1987. A constantly unpredictable economy has caused a reduction in emission tonage for certain sources due to reduced activity, whereas other sources have actually increased their activity, hence increased their emission tonage above prior years. Data used to compile and quantify the emission levels for each source was gathered using specific data procurement techniques, such as annual operating reports, process material balances, engineering appraisals, and special questionnaires.

AREA SOURCES

Palm Beach County has many sources which emit small quantities of air pollutants, and collectively their impact is significant to our atmosphere.

Therefore, these sources must be accounted for in the emission inventory. Table 28 lists major area source categories and details respective air emissions by types in tons per year for 1987. The object of area source calculations is to obtain an accurate estimate of this collective contribution on total emissions. Such an estimate may never be exact due to the difficulties of determining the emissions from every source too small and/or too numerous to be surveyed individually. Ultimately, however, this area source estimate becomes more valid as it is applied to a large number of sources since prescribed techniques were used in conjunction with the activity levels associated with each source category.

References for emission factors utilized are:

- (1) Compilation of Air Pollution Emission Factors, AP-42, Volume I, Fourth Edition, November 1985, published by the U.S. Environmental Protection Agency, Office of Air and Waste Management, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina, 27711.
- (2) Guidelines for Air Quality Maintenance Planning and Analysis, Volume 7: Projecting County Emissions, EPA-450/4-74-008, Second Edition, January 1975, U.S. Environmental Protection Agency, Office of Air and Waste Management,

- Office of Air Quality Planning and Standards,
Research Triangle Park, North Carolina, 27711.
- (3) National Emissions Data System (NEDS) Source
Classification Code and Emission Factor Listing,
January 1979, U.S. Environmental Protection
Agency, Office of Air Quality Planning and
Standards, Monitoring and Data Analysis Division,
National Air Data Branch, Research Triangle
Park, North Carolina, 27711.
- (4) Procedures for the Preparation of Emission
Inventories for Volatile Organic Compounds,
Volume I, EPA-450/2-77-028, December 1977, U.S.
Environmental Protection Agency, Office of Air
and Water Management, Office of Air Quality
Planning and Standards, Research Triangle Park,
North Carolina, 27711.
- (5) Mobile Source Emission Factors (For Low-Altitude
Areas Only), EPA-400/9-78-006, March 1978, U.S.
Environmental Protection Agency, Office of Air
and Waste Management, Office of Transportation
and Land Use Policy, Washington, D.C. 20460.
- (6) Revisions to the State Implementation Plan (SIP)
for Palm Beach County Florida, April 1983,
Metropolitan Planning Organization of Palm Beach
County.

- (7) Procedures for Emission Inventory Preparation,
Volumes I-IV, EPA-450/4-81-026A, September 1981,
United States Environmental Protection Agency,
Office of Air Quality Planning and Standards,
Research Triangle Park, North Carolina, 27711.
- (8) County Business Patterns 1984 Florida
CBP-84-11, July 1986, U.S. Department of Commerce
U.S. Government Printing Office Washington, D.C.
- (9) Mobile 3; Mobile Source Emissions Model,
EPA 460/3-84-002, June 1984, U.S. Environmental
Protection Agency, Office of Mobile Source,
Emission Control Technology Division, Test and
Evaluation Branch, 2625 Plymouth Road, Ann Arbor,
MI 48105.

TABLE 27

1987 SUMMARY
AIR POLLUTION EMISSIONS
PALM BEACH COUNTY, FLORIDA
TONS / YEAR
POINT SOURCES

A.P.I.S. No 50-50	Source Name	Parti- culates	SO ₂	SO ₃	CO	CH ₄	NO ₂	VOC	TOTAL
0005	Okeelanta Corp.	642.7	645.2	3.2	668.5	252.9	875.5	411.1	3499.1
0015	Boca Raton Hotel	0.2	0.02	0	0.7	0.1	3.3	0.2	4.5
0016	Atlantic Sugar	279.7	188.6	0.5	249.9	94.6	275.1	153.7	1242.1
0018	Q.O. Chemicals	2.2	45.7	0.7	5.4	0.1	21.4	0.2	75.7
0019	Osceola Farms	307.0	210.1	0.2	325.5	123.6	197.7	201.6	1365.7
0021	Pratt & Whitney	70.3	90.1	---	214.0	10.7	252.7	252.1	889.9
0026	Sugar Cane Growers Coop.	617.8	1534.0	0.5	577.0	218.9	509.4	356.6	3814.2
0042	Florida Power&Light	112.3	1103.4	20.3	351.1	4.5	4814.0	16.6	6422.2
0045	Lake Worth Utilities	7.5	16.4	0.1	121.8	17.2	607.5	22.0	792.5
0046	Gen.Portland Cement	2.1							2.1
0061	U.S. Sugar Corp.-Bryant	471.2	453.9	0.2	731.3	277.8	441.7	453.2	2829.3
0073	Talisman Sugar Corp.	281.5	235.9	0.4	341.8	129.7	234.5	211.4	1435.2
0081	A.G. Holley Hospital	0.5	6.3	0.1	0.1	.002	1.0	.01	8.0
0084	Eastern Cement	24.5							24.5
0087	Ranger Construction	20.9	44.0	0.6	2.9	0.4	23.5	0.2	92.5
0088	City of Pahokee	5.7	2.0	---	8.1	2.4	2.5	2.4	23.1
0155	F.H. Foster Oil Corp							9.8	9.8
0158	Cooper Oil Co.							18.6	18.6
0161	Howell Oil							9.1	9.1
0162	Charles Brown Oil							26.5	26.5
0163	Berner Oil Co.							3.2	3.2
0186	Parkway Asphalt	0.7	90.0	1.2	1.6	0.3	17.5	0.1	111.4
POINT SOURCE TOTALS		2846.8	4665.6	28.0	3599.7	1133.2	8277.3	2148.6	22699.2

TABLE 28
1987 SUMMARY
AIR POLLUTION EMISSIONS
PALM BEACH COUNTY, FLORIDA
TON/YEAR
AREA SOURCES

	Particulates	SO ₂	SO ₃	CO	CH ₄	NO ₂	VOC	Aldehydes	Organic Acids	Totals
MOBILE SOURCES:										
Highway/Off Highway	2152.0	1425.0		206056.0		22098.0	26461.0	94.0	91.0	258377.0
Aircraft	45.0	57.2		6701.0	19.5	450.0	426.0			7698.7
Vessels	23.5	97.5		5.5	0.6	41.5	4.4			173.0
Railroads	31.6	72.1		164.5	2.5	493.4	116.4	7.2	8.9	896.6
FUEL COMBUSTION:										
Miscellaneous	31.5	484.8	6.8	82.9	20.2	346.9	16.7			989.8
MINERAL PRODUCTS:										
Concrete Batching	125.9									125.9
SOLID WASTE DISPOSAL:										
Incineration	16.5	3.0		10.8	0.2	13.4	2.8			46.7
Open Burning	997.2			7369.2	292.0	167.9	955.5			9781.8
SUGAR CANE FIELDS:										
Burning	6946.0			60280.8	2828.0		8930.5			78985.3
VOLATILE ORGANIC EMISSIONS:										
Storage & Marketing of Petrol. Prod.							2629.4			2629.4
Industrial Processes							195.3			195.3
Industrial Surface Coating							143.0			143.0
Non Industrial Surface Coating							2566.5			2566.5
Other Solvent Use							4470.9			4470.9
Area Source Totals	10369.2	2139.6	6.8	280670.7	3163.0	23611.1	46918.4	101.2	99.9	367079.9
Point Source Totals	2846.8	4665.6	28.0	3599.7	1133.2	8277.3	2148.6	0	0	22699.2
GRAND TOTALS	13216.0	6805.2	34.8	284270.4	4296.2	31888.4	49067.0	101.2	99.9	389779.1

